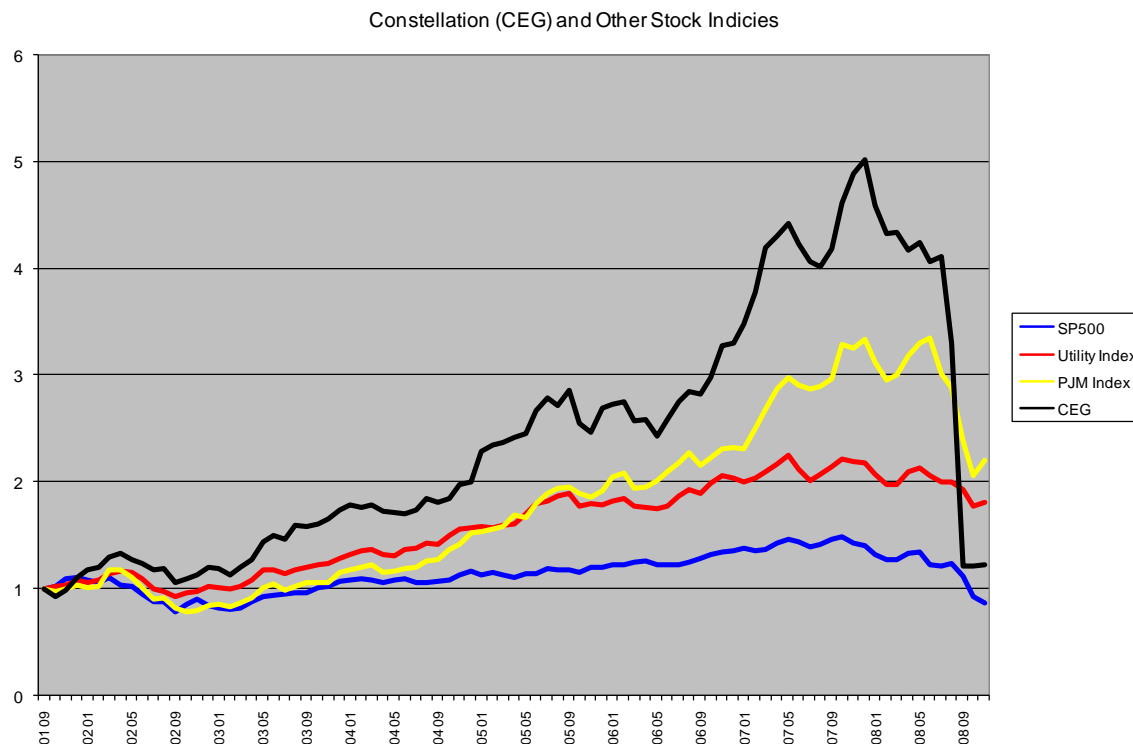


Introduction

2007 was a good year for Constellation Energy. Its stock price rose from \$70 per share at the beginning of the year to \$103 at December 31st. Constellation's CEO, Mao Shattuck III, a former investment banker, received compensation of \$12 million. 2008 was a different story. The company's stock price fell to \$13 per share in intraday trading on September 16th – the day after the Lehman Brothers collapse. By March 2009, the stock price has settled at about \$18 per share. In terms of total market value, Constellation investor losses were \$16.5 billion – down from a value of \$18.8 billion to \$2.3 billion. In attempting to maintain value, Shattuck made an impulsive decision to merge with MidAmerican Energy in September 2008 and a couple months later cancelled the transaction, costing shareholders more than \$2 billion. Constellation then entered into a transaction with EDF Development Inc. (a subsidiary of [Electricite de France](#), the state-owned French utility).



The financial failure of Constellation is illustrated in the graph below, where the Constellation share price is compared to selected regulated utility companies, the S&P 500 and other PJM generation companies.



According to Constellation, its management has been “laser focused” on increasing its shareholder value and stock price. In order to increase earnings and stock price it ventured into businesses that could produce quick growth in earnings per share. This was difficult for the company because Constellation purchased three nuclear plants at premium prices in New York that came along with fixed price power contracts (named “below market hedges” by the company). At the same time, its peers were earning high returns from the transition to deregulated rates. Mao Shattuck’s solution was to expand speculative trading, purchase companies that could produce near term earnings and attempt to minimize the risks of the new business ventures through no-transparent reporting. The lack of transparency was not limited to reporting financial results, but also included use of confusing terms and distortions of investor presentations involving what was the true nature of its business activities. Once it became apparent that Constellation was taking making speculative bets and did not have the cash on hand available to keep trading, the investors and management panicked, ultimately resulting in the above referenced merger with Warren Buffet’s MidAmerican Energy with extremely onerous terms.

One of the questions surrounding the Constellation Energy case is whether the company’s underlying strategy was good and it was simply the victim of the financial crisis and forces beyond its control, or alternatively, whether Constellation was taking irresponsible risks in the hope of increasing reported returns. The CEO of Constellation, Mayo A. Shattuck III, of course blamed turmoil in financial markets for its financial collapse (as well as the failure of the attempted merger with FPL) and he continues to

assert that his business strategies were on the mark. The discussion of Constellation's financial presentations, however, reveals a markedly different story.

Constellation Energy's demise highlights similarities between deregulation of electricity and the failure un-regulated markets in the housing and financial sectors. The case of Constellation Energy – one of the pillars of electricity deregulation – illustrates a number of problems with the notion that unencumbered markets produce benefits for consumers, investors and society as a whole. This paper discusses reasons why a company that was profiting so much from deregulation of electricity markets ultimately created such big losses for investors. The thesis presented below confirms that Constellation did indeed earn massive returns from its deregulated generation, particularly in PJM. As with Exelon and other companies that retained generating plants after deregulation, this was driven by the structure of deregulation and not any particular skill in anything else. However at the same time management took such reckless risks that the case of Constellation could be named “Enron, the sequel.” The analogies between Enron and Constellation include arrogance, excessive risk taking, exposure to credit downgrades, entry into unrelated businesses, resignation of management and non-transparency of management presentations. The paragraphs below demonstrate that Constellation and other companies with similar philosophies were the cause rather than the victim of the financial crisis.

Constellation Energy is one of the “poster children” companies for electricity deregulation. Beginning in the 1990's Constellation made it clear that its focus would be on deregulated activities rather than its regulated utility business. Its aggressive acquisitions of merchant plants, growth of its brokering business and its substantial trading operations demonstrate this strategy. Events in the Constellation case illustrate how pressure to grow profits and increase returns consumes managers after deregulation. In further reviewing all of the PJM generation companies including Constellation (Exelon, PPL, PSEG and Allegheny), it is clear that the only significant profits these companies have made has been through persuading the government to change laws in their favor, revise regulations for capacity pricing and other factors, or issue generous orders in administrative proceedings. In the case of Constellation this is more apparent than with the other companies, as any value that was created from business lines other than formerly regulated power plants or regulated distribution has not only dissipated, but destroyed value of the merchant plants and regulated distribution. In the most recent investor presentation of the EDF transaction, Constellation has come full circle and returned to discussion of how distribution rate increases will generate future earnings growth.

The remainder of this report discusses various issues raised by the Constellation case and explains how we came to the above conclusions. These issues addressed include:

- *What is the nature of various businesses that Constellation is engaged in?*
- *Was Constellation transparent in reporting its financial results?*

- *Was Constellation engaging in speculative trading or was it simply trading to hedge its generation and retail businesses?*
- *What was the time line of events that culminated in Constellation's demise?*
- *What were terms in the MidAmerican Merger and were the terms typical of other merger transactions?*
- *What is the range in values for Constellation computed on a sum of the parts basis?*
- *What are the analogies between the demise of Enron and the demise of Constellation?*

Background on Constellation Energy Business Activities

In earlier APPA studies of companies that sell power into the PJM market, we treated Constellation in a similar manner to other companies that retained regulated distribution and sold power from formerly regulated plants into the PJM market. These analyses also included Exelon, PSEG, PPL and Allegheny Power.¹ In performing the prior financial analyses, we struggled with the fact that Constellation did not separate its business lines in the same manner as other companies, meaning we could only compute returns for the overall company, for the regulated utility and the aggregate of the remaining operations, which Constellation labels as merchant activities.²

Normally it is fairly easy to define the business activities of a company. Most companies begin their reports to shareholders by describing the nature of the business that they perform. For Constellation Energy, however, the exact nature of their business has been more ambiguous (the French newspaper "le Monde" labeled Constellation as both a nuclear and a trading company). Even though financial data was not segregated, the company has three business lines that are quite easy to define. These include its regulated utility company, BG&E; its merchant power plants; and, its customer supply operations in which it performs brokering functions for retail consumers and regulated utility companies. The remaining activities are included in a business line that it has named "Global Commodities" that it began segregating in its 2008 financial reports

¹ These studies were: The Electric Honeypot: The Profitability Of Deregulated Electric Generation Companies, by Edward Bodmer, February 2007, <http://appanet.org/files/PDFs/Bodmerstudywappendices.pdf>; Affidavit of Edward Bodmer, Comments of the American Public Power Association, FERC Dockets RM07-19-000 19-000 and AD07-7-000, Wholesale Competition in Regions with Organized Electric Markets, September 14, 2007, <http://appanet.org/files/PDFs/bodmer.pdf>.

² We realized that Constellation had marketing operations and the company had an explicit trading arm in a joint venture with Goldman Sachs before the Enron collapse.

(earlier, this activity and marketing were combined into the merchant segment).³ To understand the events surrounding Constellation, we begin with a review these four lines of business.

In 2008, the BG&E regulated utility operations only represented 20% of Constellation's estimated earnings according their management.⁴ After a settlement agreement involving expiration of the transition period from frozen rates to deregulated rates, Constellation management suggests that BG&E earned returns will be comparable to other regulated utilities, implying that their valuation multiples (such as the price to earnings ratio, the enterprise value (debt plus equity value) to EBITDA (operating cash) and the market to book ratio) would be similar if BG&E were a stand alone utility company.

Out of the 80% of Constellation's earnings that are derived from non-regulated operations or what it calls merchant activities, directly selling power from merchant plants only represented about half of the total before the crash of 2008. The operating margin from Constellation's segments is shown on the table below. Constellation's merchant power plants comprise 9,010 MW and include four nuclear reactors⁵. Many of the plants operate in PJM and have been very profitable with the increase in energy prices and implementation of the RPM capacity prices. When Constellation purchased three nuclear plants in New York, it also agreed to sell power under long-term fixed purchased power agreements (which Constellation insists on naming "below market hedges.")

Constellation Merchant Segments Reported in 2009

	2006	2007	2008
Gross margin:			
Generation	1,490	1,700	1,956
Customer Supply	764	889	765
Global Commodities	656	654	260
Total	2,910	3,243	2,981
Generation Percent	51%	52%	66%

A quarter of Constellation's merchant profits in 2006 and 2007 were expected to come from the customer supply segment. Constellation describes this business as "the leading supplier of electricity and natural gas products to wholesale and retail commercial and industrial customers throughout North America." While the company uses terms such as "platforms" and "wholesale load serving", the fundamental activity is essentially a brokering of power, analogous to the role of mortgage brokers in the real estate

³ This line of business was not segregated before 2008 one could not compute the numbers before publication of the 2008 financial reports in 2009.

⁴ Presentation by Tom Brooks, President, Constellation Energy at [Deutsche Bank Energy & Utilities Conference May, 2008](#).

⁵ Constellation has 82% ownership of one of the reactors, Nine Mile Unit 2, and 100% ownership of the other three.

industry. As shown in the above table, the customer supply business segment earned almost \$800 million in 2008, almost as much as the entire operations of BG&E. Mayo Shattuck describes the expansion of the customer supply business as follows:

“We decided to expand the business that we did well, that we had pioneered, called wholesale load serving. I think we invented the term, customer supply and wholesale load serving. We used the [customer and wholesale load serving] platform to expand into retail load serving. We bought NewEnergy. We also moved into other retail businesses including gas.”⁶

In a well functioning competitive market, one would expect strong competition to keep margins for brokers relatively small. Where cost-based regulation and vertical integration are still present, broker's fees for retail consumers of course do not exist as there is a single supplier for all services. If brokers are able to earn large fees in deregulated markets, these fees represent a direct cost of deregulation and must be part of the calculus of the costs and benefits of deregulation. An open question in evaluating this component of Constellation's business is how a brokering activity could earn half as much as a fleet of almost 9,000 MW of capital intensive generating units. One possibility is that the deregulated market is very wasteful and uncompetitive, allowing a company such as Constellation to earn almost \$1 billion without much investment. A second possibility is that the Constellation made such high profits on this part of the business, not by simply providing brokering services to consumers, but rather by making bets on various energy prices moving in one direction or another. Another company, Reliant Resources, also entered the marketing business. It took bets along with the marketing business. A recent dramatic loss from betting on prices associated with marketing occurred for Reliant Resources that caused a dramatic decline in stock price from \$26 per share in May 2008 to \$2.85 today.

The paragraphs below use data and statements by Constellation to suggest that the latter explanation is at least part of the reason for the high brokering profits, meaning that the company most probably took risks in attempting to increase margins in its brokering business. Constellation's activities are analogous to brokers who took on more and more risks in the sub-prime mortgage market in order to increase their margins.

The fourth and final Constellation business segment, global commodities, is a hodge podge of activities that ranges from trading to shipping. This is the part of Constellation's business that caused the financial demise of the company. As with customer supply, this segment was estimated in mid-year 2008 to represent 25% of merchant profits. Constellation summarizes its global commodities group as a business line that “has ownership and contractual interests in natural gas, freight and power assets.... and is a risk manager, market-leading trader and developer of our energy investments portfolio.” The former chief financial officer of Constellation, Tom Brooks, separated the global commodities into three businesses in a speech in the spring of 2008⁷:

⁶ Analyst Day Presentation, August 27, 2008.

⁷ Tom Brooks, Deutsche Bank Conference, May 2008

- The first part of the global commodities discussed by Brooks is named structured products. He explains that: “In structured products, we originate longer-term customer risk management transactions in three areas.” This seems to suggest that Constellation is simply earning a fee for creating contracts that enable companies to reduce their exposure to fluctuating energy prices. If Constellation was simply creating contracts for a fee, this business is essentially providing consulting services.
- The second part of the business is “direct investments in energy-related assets.” Brooks explains that the company has made investments in two key areas – natural gas production fields and ships that transport coal. In 2008, Constellation owned nine natural gas fields and six dry bulk ships. (Constellation seems to be incapable of describing any of its business in relatively simple terms. For example, Mayo Shattuck could not describe the business as earning shipping fees; instead he insists on using the term “freight intermediation.” Perhaps this is because the company was in fact using the ships to speculate on the price of coal through buying coal and hoping the prices would increase in the meantime.) Somehow, Constellation maintains that these businesses are “strategically connected to the business.”
- The final part of global commodities is described by Constellation as “portfolio management and trading.” According to the company it has a “very strong market position” and it is “the number one player in U.S. power markets for the last five years.” (This statement has strong shades of Enron’s assertions before it collapsed in 2001.) In describing this business, Constellation states that it “also deploys risk capital in traded energy markets.” The term “deploys risk capital” is often used by the company and it is essentially meaningless. The phrase could either mean directly taking risks that energy prices will move (taking uncovered positions), or taking other types of risks related to hedging where possible price moves of different energy commodities are not perfectly hedged with one another. The company never describes exactly what the term “deploying risk capital” really means.

The central question raised by this review of Constellation’s businesses is whether Constellation has been engaged in speculation on energy price moves, and if so, how exposed is the company to changes in energy prices. As discussed in the next section, this question cannot be answered by Constellation financial reports because of the lack of transparency in its presentations.

Transparency of Constellation in Reporting Financial Results

Constellation would surely not admit it, but management essentially attempted to solve the problem that a large fraction of its earnings came from its commodities and

marketing businesses by obfuscating reporting of its historic financial results and presenting earnings projection guidance in a confusing and opaque manner. Indeed, the Constellation case can be used to demonstrate what being non transparent really means. Constellation's reporting did not allow one to evaluate how much risk the company was taking and statements by management are so confusing as to require a translator. When Constellation describes terms such as "asymmetric collateral requirements", "deployment of risk capital", "leveraging business platforms", "as priced margins", "transitional liquidity", "right-sizing of strategic footprints" and many other phrases without explaining what they mean, one can feel quite inferior to their superior intellect (I certainly did). The lack of disclosure and attempts to create confusion by Constellation's former investment banker CEO could be the subject of a joke about investment bankers:

A medical doctor, an engineer and an investment banker are at a cocktail party. The medical doctor pompously asserts that the medical profession is the oldest profession. He cites a passage from the Bible, in Genesis where God creates man and woman. "Surely," he says, "this was the first medical act."

The engineer jumps in and says, "I remember a passage prior to that, which says, out of the chaos and confusion, God created the earth. Surely, this was the first act of engineering and predates the first medical act."

"Aha!" says the investment banker, "who created the confusion?!"

As stated in the prior section, Constellation's reports do not allow one to segregate the return on investment for its merchant plants from other non-regulated activities not linked to physical assets and where the allocation of capital is unclear, most importantly speculative trading. Further, the reporting of business lines seemed to be continually changing as described in a paper by John Parsons titled "Do Trading and Power Operations Mix?"⁸ Not surprisingly, investors have been complaining about Constellation's transparency in reporting its results for years. This was directly acknowledged on a number of occasions by company management as demonstrated by the following speech given by Constellation's Chief Financial Officer:⁹

We continue to hear from you regarding the transparency of our business and our overall disclosure...We are committed to providing continuously improving transparency and better insight into our business and that include both our results and our plans to take certain steps over time that will help us improve that transparency.... First, as we move forward, we will be working towards discrete reporting on each business unit to provide more detailed information on segments

⁸ *Do Trading and Power Operations Mix? The Case of Constellation Energy Group 2008*, by John Parsons, Center for Energy and Environmental Policy Research, November 2008, available at <http://ssrn.com/abstract=1299643>

⁹ Speech at conference by John R. Collins, the new chief financial officer of Constellation

currently reported. As you are aware, in 2008, we refined our reporting to show gross margin by activity – generation, customer supply and global commodities – within the merchant segment. Our reporting continues to evolve with the goal of ensuring appropriate transparency into our business results and financial condition. The ultimate goal would be to include full financial, capital allocation and returns for each business activity within the merchant segment.

With hindsight it is remarkable that before 2008, investors had no way to differentiate the safe and stable profits made from selling power from the Gina nuclear plant under fixed price purchased power contracts with profits made by speculating on the direction of energy prices. In short, for Constellation, the attempts to improve its reporting were far too little and far too late. To demonstrate how Constellation could have presented results, the table below shows how NRG presented its purchase obligations. When reading the NRG report compared to the Constellation reports one seems to be in a completely different world.

	2009	2010	2011	2012	2013	2014
Net Baseload Capacity (MW)	8,701	8,539	8,459	8,432	8,432	8,432
Forecasted Baseload Capacity (MW)	7,497	7,229	7,164	7,232	7,324	7,395
Total Baseload Sales (MW)(a)	7,156	5,686	4,825	3,272	1,988	789
Percentage Baseload Capacity Sold Forward(b)	95	79	67	45	27	11
Total Forward Hedged Revenues(c)(d)	3,851	2,905	2,200	1,670	958	368
Weighted Average Hedged Price (\$ per MWh)(c)	61	58	52	58	55	53
Average Equivalent Natural Gas Price (\$ per MMBtu)	8.06	7.92	7.09	7.85	7.43	7.24

One of the primary motivations for Constellation's lack of transparency seems to be an attempt to bundle profits from speculative trading together with earnings from selling power from physical plants. It is natural for investors to value trading profits much less than profits from selling power because if investors want to take speculative positions in energy markets, they can do so without Constellation making trades on their behalf. For example, if an investor would like to bet on the price of electricity going up, he could buy a forward contract for a fixed price and then if the actual price exceeds the contract price, he would realize a profit. There is no reason for Constellation to be involved in this transaction and if this is all that the company is doing, investors would surely want to know. On the other hand, if the investor wanted to realize profits from selling electricity power into PJM, he could not so easily buy a power plant.

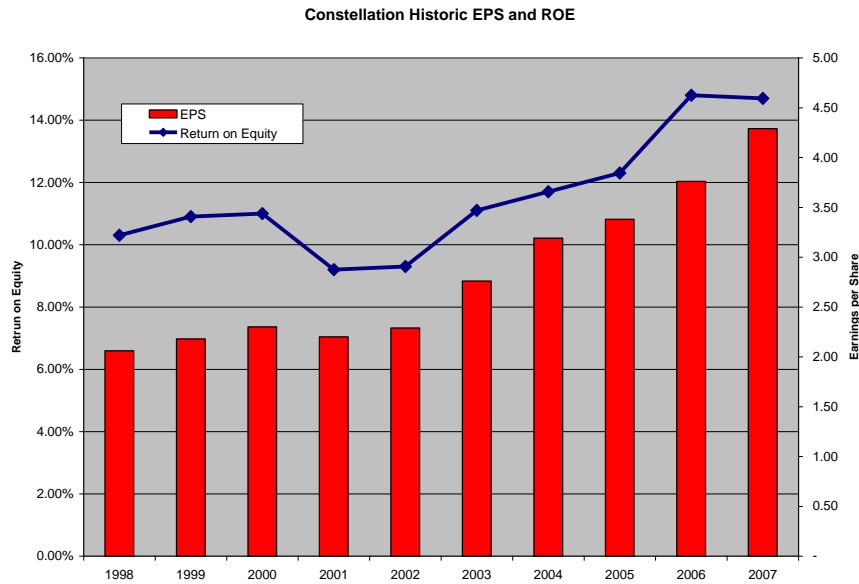
The motivation of Constellation to try and realize higher value from its trading business is demonstrated in the statement below made by Mayo Shattuck about how he believes stock investors do not place enough value on trading profits. If investors do not value trading profits as much as profits from a generating plant, then Constellation's idea seemed to be to simply combine the two earnings streams together and hope that investors will value the total as if it were all cash coming from selling power from merchant plants:

When we got to 2004 and we looked at the landscape, it was also apparent that although the generation fleet would eventually come off in 2006, the businesses that had grown so fast and that had created so much earnings power had reached the point where they constituted close to 40% of the earnings power of the company. And, realizing of that percentage putting into the context of how people value companies like ours, it also became apparent that investors were going to have a hard time valuing a company like ours that had a utility, had merchant generation and had a commodities business that was expanding. We thought about a lot of ways of resolving that, but clearly the message that we got and although I'm not a PE chasing type of guy, strategically I felt that we had to address the issue of being able to at least understand the value of the parts of this business and, frankly, whether an incremental dollar of earnings coming from the commodities group was actually going to degrade the multiple an equivalent amount to add no value to the shareholders worth. And I think that it's an issue that a lot of us have been grappling as we talked about the value of the company for many years now.

[Translation: the company was impatient to realize increased profits from increasing prices to retail customers and it was making more money from trading. The trading operations were providing 40% of the total earnings of the company and investors were not giving this enough value. Indeed, investors did not seem to be giving earnings from trading any value at all.]

The above statement is telling about the strategy of the company. Management thought they were able to beat the market. Further, they were impatient about waiting for the merchant plants to realize more cash flow. So they decided to get into trading in order to produce a higher rate of return. The returns did increase as shown on the graph below – note that the EPS and return on equity increased even before the large rate increases of 2007.¹⁰ This return earned by Constellation was difficult to achieve because the company did not only own generating plants that were financed by its ratepayers, but it was also purchasing assets. Constellation did earn very high margins from its formerly regulated plants, but when it bought nuclear plants in New York at a premium to book value, it also had to sign long term contracts. The combination of paying a premium and locking into contracts limited the returns on these plants. (If the assets are purchased at a premium and earnings are limited by purchased power contracts, the acquisitions reduce rates of return.) The management had to find ways for investors to recognize value from their superior intellectual abilities.

¹⁰ Source: ValueLine, October 2008.

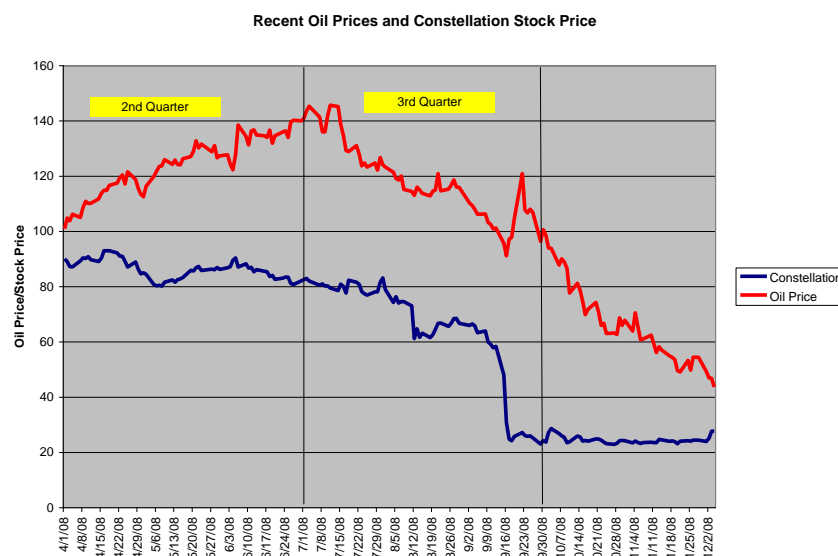


Constellation's Hedging and Speculative Trading

At an investor conference on August 27th, 2008, and in many other presentations, Mayo Shattuck and other Constellation managers implied or directly stated that the company was not taking speculative risks but rather it was simply supporting its merchant generation and marketing businesses. For example, Schattuck stated that two thirds of its collateral requirements were for hedging activities related to its merchant plants, hedging for customers and hedging its coal business. He stated that the collateral simply supported activities such as participating in ISO markets and arranging load for customers that were normal part of doing business in brokering and merchant plants. Importantly, the chairman of Constellation never directly admitted that the company had been engaging in speculation until he discussed the sale to EDF in December, 2008.

The implication that Constellation was completely hedged and that it was not making bets on movements in energy prices is difficult to swallow when one looks more deeply into various numbers presented by the company. Some of the information that suggests Constellation has been speculating includes:

- The earnings profile clearly demonstrated that the company had explicitly or implicitly taken long positions in power (i.e., betting that its price would rise). In the second quarter of the year, when energy prices were very high, the Global Commodities business made \$486 million. On the other hand, when energy prices began to fall in the third quarter, Constellation recorded a loss of \$148 million – a swing of \$634 million between the two quarters. During the same two periods, the trend in oil prices changed from increasing to decreasing as shown on the chart below. If Constellation were hedged against changes in commodity prices as they stated, the earnings would of course not swing by this dramatic amount.



- Earnings from the brokering business also fell dramatically when energy prices fell, implying that this segment was also betting on energy prices. In the second quarter, the gross margin for the customer supply business was \$277 million. In the third quarter it fell to \$83 million. If the company was simply arranging power for customers and neutral with respect to power prices, the swing in profits would not occur.
- Constellation management stated that it was bullish on energy prices in its second quarter conference call. One of the company executives reported: “As Mayo stated, we entered the second quarter bullish on energy commodities and certain price relationships among commodities and locations given what we observed in the first quarter. We benefited in our power, gas, and coal businesses for what turned out to be a rapidly rising market ...”¹¹ While the term “bullish” is vague, in this context it clearly means that the company would perform better if the energy prices increased. If Constellation was simply hedging its positions, it would be neither “bullish” nor “bearish” on energy prices. If it was to perform better with higher prices, it must not have simply hedging, but making bets with its trading that prices would continue to increase.
- If Constellation’s trading activities were primarily related to hedging, it would not show mark to market gains on the income statement, rather the changes in market value would be recorded through complex accounting called “Accumulated Other Comprehensive Income.”
- The company regularly reports “value at risk,” a complicated statistic that supposedly measures the maximum loss that could be realized in one day

¹¹ Constellation second quarter earnings presentation.

with a one percent probability. The number was about \$30 million in the third quarter – compared to the actual decline in earnings of \$634 million – implying there were as many as 21 days of one percent likelihood events. More importantly, if Constellation were not making bets, the value at risk would be nothing and the statistic would be irrelevant.

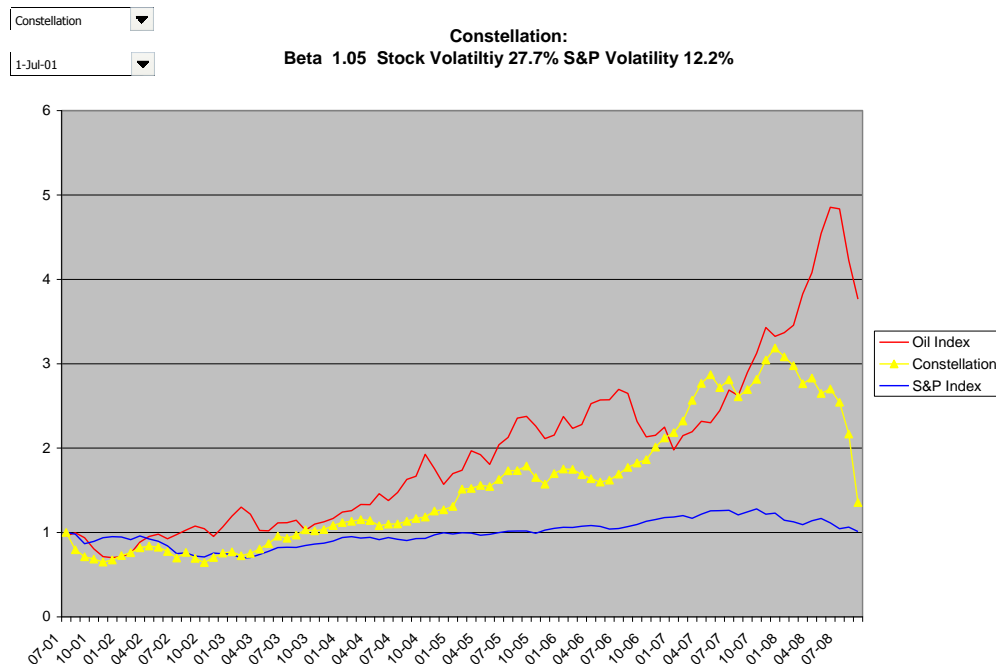
- The company purchased almost \$1 billion of natural gas producing properties as natural gas prices were increasing, justifying the purchases by the bizarre logic that: “As a merchant supplier, we are able to identify opportunities to serve customers, which provides the insight to acquire assets and deploy risk capital at the right time.” This statement is mysterious even after translation – why does brokering of electricity allow one to have a competitive advantage in buying natural gas fields, dry bulk ships or coal trading operations in London? Investors could have purchased natural gas upstream stocks themselves, but apparently Constellation believed that it was somehow better at buying gas properties than others, even though it had no experience in production. Purchasing these natural assets meant that the company was naturally exposed to price declines.
- In discussing the EDF merger, the company finally acknowledged that it is now “flattening” its exposure and only taking heat rate risk, implying that the company had formerly taken bets that did not result in a “flat” exposure to price changes. The company finally stated that it was “winding down speculative activities” after using terms such as “de-risking the portfolio” in earlier presentations.

Taken together, these facts demonstrate that Constellation was profiting from the long bubble in energy prices similar to the way many companies and people were profiting from the housing price bubble. While energy prices were increasing, it was easy to be confident in the trading strategies that were producing profits. After all, when crude oil prices reached \$147 per barrel in the summer, almost everybody seemed to believe that oil prices would reach \$200 per barrel because of supply and demand. Many experts including Goldman Sachs were making these forecasts, and no one was expecting the prices to fall to the current \$40 per barrel price.

Belief that the energy price bubble would continue made Constellation’s earnings from the trading activities seem to be quite stable as demonstrated by the following statement by management: “Unlike our physical fleet and load serving, [global commodities] is challenging to model from outside, but it has been a steady earner, and the underlying capability is a key differentiator that has been critical to our success.”¹² The translation of this statement is that analysts do not know how to project profits from trading activities and Constellation believed they should use historic trends. In fact, the profits had probably been earned from general increases in the price of energy

¹² Constellation second quarter conference call.

commodities. The long period of oil price increases and Constellation's stock price is illustrated on the chart below.



Constellation believed they were able to analyze risk and find opportunities in energy commodity markets better than others. The confidence bordering on arrogance is illustrated by the following statement: “the realignment of all our merchant businesses allows us to leverage our world class capabilities in risk management and portfolio management across our industry-leading platform.” Nicholas Taleb describes the manner in which traders who believe they are outsmarting a market with increasing prices often end up losing money. The trader described in the excerpt below could be Constellation and the quantitative tools could be the sophisticated risk management tools that the company continually boasted about.¹³

The trader “seemed unaware of one large risk he was taking, the risk of blowup, a risk that he could not see because he had too short an experience of the market (but also because he was not thoughtful enough to study history)....The business of [trading] depends on some knowledge of the “odds,” a calculation of the probability of rare events.... These traders use “quantitative tools” that give them the odds... The market resembles a nap on a railway track. One afternoon, the surprise train could run you over. You make money every month for a long time, then lose your cumulative performance in a few hours. One day [traders like this] are taken off the exchange floors and nobody ever sees them again.”

¹³ Refer to risk management discussion.

Constellation Energy's efforts to profit from speculative trading on top of their direct power sales is analogous to people who speculated on second homes, as illustrated by a statement made by Mayo Shattuck:

Now these businesses were – an expansion in these business were very relevant to us at the time for one very critical reason and that is that the deregulation of 1999 had come along with it caps on the pricing of a large portion of our generation fleet. So, in fact, generation had an eroding profit picture over the course of the years up until 2006. So one way to put it is that we had a gap in our earnings picture for several years. We had an incredibly talented group of people. We had competitors retreating in the other direction and we decided to expand the [trading] businesses that we felt we could manage well ...

The table below that reports return on equity shows that Constellation did earn lower returns than its peers although returns did increase when rates to consumers were increased after 2006. The table shows that all of the trading activities did not increase returns very much even though risks were increased substantially.

Return on Equity Reported by Value Line								
	2001	2002	2003	2004	2005	2006	2007	2008
Exelon	17.20%	20.10%	18.80%	19.50%	23.60%	23.70%	26.90%	24.60%
PSEG	18.60%	18.60%	18.60%	18.60%	18.60%	18.60%	18.60%	18.60%
PPL	20.80%	18.10%	20.20%	16.10%	16.50%	17.30%	18.20%	18.20%
Constellation Energy	9.20%	9.30%	11.10%	11.70%	12.30%	14.80%	14.70%	2.60%

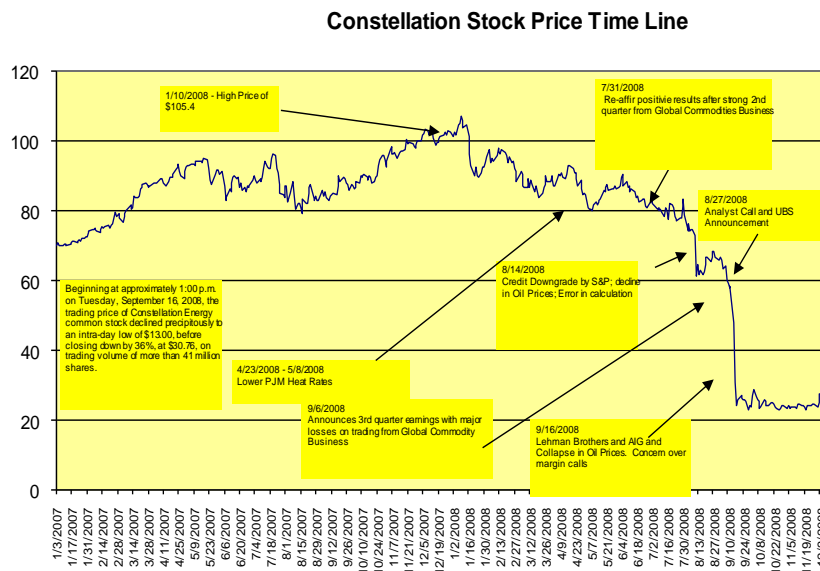
Timeline of Constellation Demise

The specific reason for Constellation's financial demise was panic in the financial community that the company could not raise enough cash to continue its trading activities. Since Constellation was continuing to make a profit and its assets were still valuable, the collapse has been termed a "liquidity crisis." Constellation management essentially blamed events that were beyond its control -- on "unprecedented turmoil in financial markets," "volatile energy commodity prices" and the actions of rating agencies who were worried about trading partners losing confidence. When the company places blame on volatile financial markets for its problems, it is like investors in sub-prime mortgages blaming their value declines on the fall in housing prices. Constellation was as much a victim of the financial crisis as AIG. In fact, Constellation and financial institutions took irresponsible risks and created the crisis in confidence rather than the other way around.

While much of the reason for Constellation's earnings decline was due to lower energy prices, the emphasis of investors in discussing the demise of Constellation has been on the amount of cash, letters of credit it has to post for trades and borrowing availability under existing bank loans. The issue of liquidity is hardly mentioned by

other PJM generation companies such as PPL Corporation, Public Service Electric & Gas, Allegheny Energy and Exelon. For Constellation, the amount of required liquidity is related to credit ratings. If the company would fall below investment grade, counterparties to trades would require more cash margin for trading to continue because they are worried about Constellation not being able to meet its commitments.

To describe the events that caused the liquidity crisis of Constellation, it is necessary to understand why the rating agencies were worried about the company; what happened to earnings outlooks and the effects of other events including a large loan from UBS and misreporting of cash margin requirements. The timeline of Constellation's stock price is illustrated on the graph below. The company's stock price was very strong in January 2008 and declined beginning on January 14th after a report from the Maryland Public Service Commission finding that ratepayers had overpaid the company's stranded investment. Later, in August, the stock price fell from about \$80 to about \$60 after a bond downgrade and worries about the trading exposure. After the announcement of the third quarter earnings, an error in making a collateral calculations, and losses on the commodity business, the price collapsed.



When Constellation's stock price declined in August 2008, the company suggested that the fundamental earning power of the company was strong and the problems were only related to liquidity, as illustrated by the following statement: "these [commodity] price increases also resulted in increased margin requirements, as our margined contracts went out-of-the-money and our un-margined assets went significantly in the money. Again, our economic position improved, but our need for collateral support increased. This increase in collateral requirements led to a reduction in liquidity."

Constellation continued to be very confident up until the Lehman Brothers' collapse in September 2008. This is demonstrated by comments the company made a couple of weeks before the stock price crash, on August 27th, in Camden Yard. Even though the stock price had already begun to fall, Mayo Shattuck began and ended the presentation with the "message" that all four of Constellation's business units including global commodities were performing well. The company re-affirmed its earnings guidance, which was that earnings per share for the year 2008 would be between \$5.25 and \$5.75 per share. (Using the high end of the range and a price to earnings multiple of 15 implied a stock price of \$86 per share.)

A couple of weeks later when Constellation accepted the MidAmerican merger offer, it dramatically changed its earnings per share guidance. The company then stated its earnings in 2009 on a stand-alone basis would be in a range of \$1.50 to \$3.00 per share (without adjustments for increased cost of debt and other factors related to the merger, the earnings would be in the range of \$2.80 to \$3.30 per share). This compares to earnings for 2009 that Constellation projected a few weeks earlier to be in the range of \$6.03 to \$6.29/share. Similar dramatic changes in earnings occurred in Constellation's reporting of the third quarter earnings. At the August 27th investor meeting, Mayo Shattuck stated that the earnings which would be reported in a couple of weeks would be between 83 cents and 99 cents per share. In September, earnings excluding special items were 79 cents and actual earnings including write-offs were negative \$1.27. Constellation had taken a "kitchen sink" quarter similar to the earnings of many financial institutions when it became clear that sub-prime mortgages had little value.

The bond rating began a cascade of other problems for Constellation ultimately resulting in the possibility of bankruptcy. The downgrade also created a Catch-22 situation in which the bond rating aggravated liquidity problems that made the company riskier and caused yet more problems with the bond rating. Constellation had obviously not planned for a bond downgrade scenario as demonstrated by the error it acknowledged in computing the effects of a downgrade to below investment grade on liquidity requirements.¹⁴

The Constellation bond downgrades were not only related to potential liquidity problems, but also to risk related to speculating on commodities. This is demonstrated by the statement from Standard and Poor's that "the company's ability to shore up its liquidity and to reduce risk in its commodities business are key credit drivers..." Fitch similarly commented that Constellation's risks are related to price risk and volume risk as well as liquidity. Fitch stated:

CEG's merchant business is exposed to risks surrounding market price, volumes, counterparty credit, and liquidity for collateral. Managing these risks requires strong information systems, controls, and management discipline. Furthermore, CEG has a high degree of reliance on its corporate credit rating for hedging merchant power generation, wholesale

¹⁴ The error was acknowledged at the August 27th analyst conference. The company had previously estimated cash margin in a downgrade to be \$ billion and increased the estimate to \$ billion.

and retail energy marketing, and trading activities; a loss of market confidence among its counterparties would have unfavorable business and financial consequences.

In sum, bond rating agencies clearly did not agree with Constellation's CEO that everything was performing so well and there was such little volatility in its earnings.

Merger with MidAmerican and EDF

One of the debates concerning Constellation Energy is whether Mayo Shattuck and Constellation were acting in the best interests of investors in their initial agreement to sell the company to MidAmerican Energy for \$26.50 per share. Constellation agreed to signed a merger agreement with MidAmerican Energy on September 19th, 2008 and stated bankruptcy was imminent. A couple of months later, on December 17th, the company cancelled the MidAmerican merger, costing investors more than \$2 billion, and accepted a higher offer from EDF Development Inc. (a subsidiary of [Electricite de France](#), the state-owned French utility).

During the third quarter conference call, the final comment from an analyst demonstrates the relations between the company and its owners. The analyst said that he hoped the vote on the MidAmerican merger is a "resounding no" because the company is worth much more than consideration in the merger. Initial acceptance by Constellation management of the MidAmerican merger demonstrated the desperation of Constellation management and the type of terms that can be imposed on a company that cannot raise cash to continue short-term operations. As it turns out, the merger was extremely expensive for Constellation's investors. The company paid two financial advisors \$40 million to help with the decision.¹⁵ With this advise in hand, signing an agreement with MidAmerican ended up costing investors more than \$2 billion, as discussed later (compared to the MidAmerican transaction value of \$4.7 billion.)

The MidAmerican merger was originally accepted despite a prior offer from EDF at a higher price than the MidAmerican offer of \$26.5 per share. As discussed in the next section, just a couple of months earlier Constellation submitted an analysis that suggested its market value ranged from \$108 to \$135 per share. Constellation accepted the offer because of an immediate cash infusion that would be made by MidAmerican of \$1 billion in preferred stock. Even though EDF had made a much higher offer at \$35.00 per share, Constellation selected the lower offer because there was more cash injection. The panic in the market is clear from the table below of dramatically increasing market margins for credit. On the 17th of September, the spreads for Constellation were even higher than the percentage for Lehman Brothers.

¹⁵ A fee of \$20 million was agreed for both Morgan Stanley and for UBS Credit Suisse.

Credit Default Swap Spreads						
	1 Year Prior	6 Months Prior	3 Months Prior	1 Month Prior	17-Sep-08	18-Sep-08
Exelon Generation	0.638%	1.702%	1.138%	1.353%	2.292%	2.392%
Exelon Corp.	0.608%	1.512%	1.002%	1.235%	1.925%	2.162%
PPL ES	0.595%	1.888%	1.152%	1.491%	2.817%	2.617%
PSEG Power	0.492%	1.664%	0.999%	1.282%	2.383%	2.471%
IG10 Index	0.610%	1.850%	1.120%	1.344%	2.034%	1.787%
Lehman	0.925%	4.433%	2.528%	3.043%	7.067%	7.067%
Constellation	0.528%	1.793%	1.017%	1.818%	7.650%	2.808%

The urgency perceived by Constellation to complete transaction with MidAmerican is apparent from the merger prospectus, which sometimes reads like a mystery novel complete with meeting times and begging for changed deadlines. For example, the following excerpt from the prospectus describes how Constellation asked a MidAmerican representative to fly to Baltimore:

Mr. Sokol [of MidAmerican] indicated that his company was interested in a possible transaction with Constellation Energy and that he was prepared to fly to Baltimore that day to meet with Mr. Shattuck. In light of the extreme market conditions and market rumors that Constellation Energy was facing an immediate liquidity crisis and a potential ratings downgrade, Mr. Shattuck requested that Mr. Sokol arrive in Baltimore by 6:00 p.m.

After signing the agreement, Constellation stated that a significant reason for selecting MidAmerican instead of EDF was because “MidAmerican and Berkshire Hathaway are committed to Constellation’s business plan and strategic direction ...” [Translation: EDF would not continue the global commodities activities. The decision by Mayo Shattuck to move forward with the merger hinged on how close to bankruptcy the company was and what would happen in the event of a bond downgrade.] A highly controversial slide was presented by Constellation that showing that the liquidity in the event of a downgrade would be much lower than was stated previously. This put in to question the entire rationale for the MidAmerican merger and was the subject that caused the ire of investment analysts discussed in the introductory section of this paper.

The decision made by Mayo Shattuck to accept and then reject the MidAmerican offer was very expensive for investors. According to Constellation, “under the provisions of the termination agreement MidAmerican will receive a \$175 million termination fee. In addition, the preferred shares issued to MEHC Investment, Inc., a wholly owned subsidiary of MidAmerican, will convert, and MEHC Investment, Inc. will receive a \$1 billion note at 14 percent interest, maturing Dec. 31, 2009; approximately 20 million shares of Constellation Energy common stock, representing 9.99 percent of outstanding shares; and approximately \$418 million in cash. Additionally, the \$350 million liquidity resource will terminate.” The company valued aspects of the cost other than the value of the shares. This value combined with the value of shares assuming a share price of \$55 is shown table below:

Value Received by MidAmerican	\$ Millions
Discount on Preferred Stock	\$39.00
Put Option Premium	\$15.00
Preferred Stock Conversion Premium	\$943.00
Merger Termination Fee	\$175.00
Total Direct Costs	\$1,172.00
Total Shares	178.00
Share Value	\$55.00
Value of Total Shares	\$9,790.00
Percent Owned by MidAmerican	9.90%
Value of Shares	\$969.21
Value Realized by MidAmerican	\$2,141.21
Percent of Total Constellation Value	21.9%
MidAmerican Offer	\$26.50
Total Merger Consideration	\$4,717.00
Value Realized as Percent of Offer	45.39%

In the conference call describing the EDF transaction, Mayo Shattuck stated that MidAmerican had been “incredibly helpful and cooperative through the whole process.” Somebody did not have their phone on mute and one could hear chuckles after the comment. The laughter is understandable. Why wouldn’t MidAmerican and Warren Buffet be cooperative if they were receiving \$2 billion for doing nothing?

Valuation of Constellation

The valuation of Constellation is instructive for understanding why management accepted and then rejected the MidAmerican offer and then decided to work with EDF. Valuation also provides insight into just how much ratepayers have given up in the deregulation process. This is possible because given all of the activity surrounding Constellation’s stock price, the generation portion of the company has been valued separately from the regulated operations and the trading activities. The variation in valuations made of the company is almost as much as the fluctuation in stock prices.

Constellation provided a valuation in its second quarter earnings presentation where it suggested the value of its stock was between \$108 and \$135 per share. This analysis results in an implied generation value of between \$1,900/kW and \$2,250/kW. A couple of months later, the company presented a valuation in the context of the MidAmerican transaction that was a dramatically lower value of between \$22.35 and \$27.93 per share. This resulted in an implied generation value of between \$550/kW and \$600/kW. The EDF offer was \$4.5 billion for half of 3,869 MW implying that the value of nuclear plants is \$2,374 per kW. The EDF offer confirms the very high value of plants relative to the amount that ratepayers originally invested.

The valuation presented by Constellation in its second quarter 10-Q is shown in the table below.¹⁶ The valuations comes from applying either EV/EBITDA (a ratio of equity value to earnings) multiples or P/E multiples (share price to earnings ratio) meaning that the income is multiplied by the income amount. In making this valuation for BG&E, Constellation use the following for the regulated utility comparison group: Duke Energy, Energen, NSTAR, PG&E and Southern Company. As shown in Appendix 1, the P/E ratio for utility companies is similar to these companies used in the analysis (between 14 – 16). The value of regulated companies has not suffered during the financial crisis as have other companies. For customer supply, Constellation uses a sample of specialty insurance companies including RLI, Safeco, WR Berkley and White Mountains Insurance Group. This selection of comparable companies is odd, given that the customer supply segment was supposedly hedged against risks (unlike insurance companies who's business it is to accept risk) and that the financial structure of insurance companies is completely different than Constellation. Further, insurance companies have entirely different methods of accounting and must make reserves for future payments. For the global commodities segment, Constellation uses a sample of two investment banks including Deutsche Bank and Goldman Sachs. This analysis is also questionable because it is not standard accounting practice to compute EBITDA for banks and because the nature of investment banking, including debt leverage and accounting, is very different. Finally, for the generation segment, Constellation uses merchant companies including Calpine, Mirant, NRG and Reliant. The company first applies the multiples of EV/EBIDTA to its EBITDA as if all of the generation were receiving spot prices, and then subtracts the present value of the contracted power versus the spot rates from the value at spot rates. EBITDA at spot rates at the time of the analysis is estimated to be \$3,142 million while actual EBITDA including the long-term contracts on the New York plants was only \$1,068 million. If the actual EBITDA was used in the analysis, the valuation of generating plants would be much lower.

The table below demonstrates that most of the value in Constellation's analysis comes from generation, even though the EBITDA is split about evenly between the generation segment and the other two merchant business lines. Constellation seems to be attempting to attribute a high value to generation through using lower multiples for customer supply and commodities and applying multiples to un-hedged EBITDA. Through dividing the generation value by the amount of generation capacity (9,100 MW), the implied value per kW is computed. The method Constellation uses of adjusting the value for the present value of contracts is potentially applicable in policy applications.

¹⁶ Q2 2008 Constellation Energy Group, Inc. Earnings Conference Call, Presentation Slides, July 31, 2008.

Constellation Value in Second Quarter Earnings Presentation					
	EBITDA	Multiple Range		Total Value	
Generation at Market Prices	\$3,142.00	7.00	8.00	21,994.00	25,136.00
PV of PPA Contracts	(\$4,800.00)			(4,800.00)	(4,800.00)
Net Value				17,194.00	20,336.00
Customer Supply	\$456.00	4.50	6.00	2,052.00	2,736.00
Global Commodities	\$567.00	3.50	5.00	1,984.50	2,835.00
Merchant Debt	(\$3,647.00)			(3,647.00)	(3,647.00)
Equity Value				17,583.50	22,260.00
BG&E	\$127.00	14.00	16.00	1,778.00	2,032.00
Total Equity Value				19,361.50	24,292.00
Shares				179.00	179.00
Value per Share				\$108.16	\$135.71

A couple of months after Constellation presented the above valuation it computed another valuation in the context of the MidAmerican merger conducted by Morgan Stanley.¹⁷ This time, Constellation suggested that there is a negative value of the commodities business and the remaining segments are only worth \$6 billion in equity. The calculation resulted in a range in stock price of between \$22 and \$28 per share. Other than showing the dramatic swing in valuation of the commodity business – down from positive \$2 billion to negative \$2 billion, the analysis demonstrates the implicit valuation of power plants in the MidAmerican bid.

Valuation by Morgan Stanley		
	Low Range	High Range
Fair value of businesses other than global commodities	\$12,000.00	\$13,000.00
Less repayment of outstanding indebtedness	(\$6,000.00)	(\$6,000.00)
Less net loss (negative value) of global commodities business	(\$2,000.00)	(\$2,000.00)
Net equity value (before costs and expenses)	\$4,000.00	\$5,000.00
Shares	179.00	179.00
Net equity value per share (before costs and expenses)	\$22.35	\$27.93

To compute the valuation of generating plants implied in the MidAmerican merger, one can subtract the value of BG&E and customer supply from the total fair value of the businesses. The value of BG&E can be computed using a market to book

¹⁷ In making the valuation Morgan Stanley noted that, given the extreme changes in then current market conditions, the volatility in Constellation Energy's stock price is driven in principal part by solvency concerns and the resulting lack of relevance of traditional valuation analyses (such as reviewing discounted cash flow analysis or an analysis of the trading metrics of comparable companies).

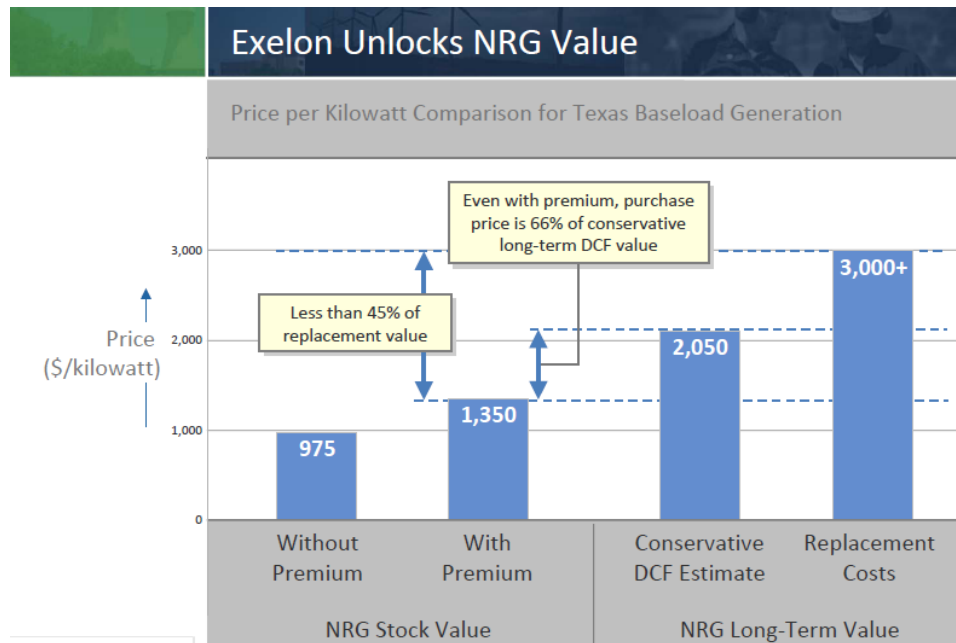
ratio analysis and the valuation of the customer supply is obtained from the earlier Constellation analysis which was relatively conservative. Once these adjustments are made, the remaining value attributable to the generating segment is about \$5 billion. Dividing the \$5 billion by 9,010 MW yields a value of about \$500 per kW. Given the cost of building new plants and the implied cost of generation in other transactions, the MidAmerican offer was clearly a very good price.

Implied Generation Value in Morgan Stanley Analysis		
	Low Range	High Range
Fair value of businesses in Morgan Stanley Analysis	\$12,000.00	\$13,000.00
Less: BG&E Value	\$4,909.72	\$4,909.72
Less: Value of Customer Supply	\$2,052.00	\$2,736.00
Implied Value of Generation	\$5,038.28	\$5,354.28
MW of Generation	9,051	9,051
Value per kW Implied in Morgan Stanley Analysis	\$556.65	\$591.57

The value of capacity is dramatically higher in the EDF transaction. According to the Constellation's press release, \$4.5 billion was paid for one percent less than half of the nuclear capacity. The amount paid for the capacity -- \$2,373/kW -- is dramatically more than the offer made by MidAmerican.

Value per kW in the EDF Transaction	
Consideration by EDF	\$4,500.00
MW of Nuclear Generation	3,869.00
Share of MW	1,895.81
Value per kW	\$2,373.66

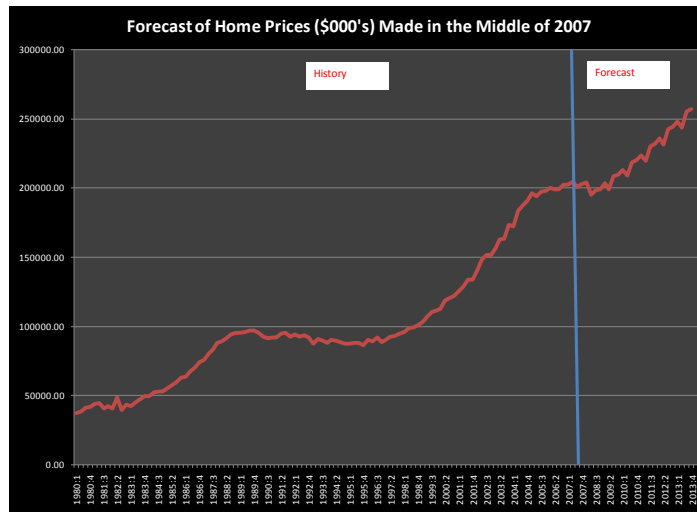
In considering the value of generating capacity, the recent proposed takeover of NRG by Exelon also provides instructive data. The slide below prepared by Exelon shows that even after the decline in stock prices, the NRG had a value of \$975 per kW -- almost double the amount implied in the MidAmerican merger. Exelon apparently believes that a mix of nuclear, coal and gas capacity has a value of \$2,050 per kW. This data confirms that through placing the company in a liquidity crisis, making hysterical decisions in the MidAmerican merger and betting on ever increasing energy prices, Constellation management destroyed massive value for its investors. Constellation has now retreated to focusing on gaining rate increases and eliminating any speculative activities.



Analogies between Constellation and Sub-Prime Crisis

There are many analogies between Constellation and companies involved in the sub-prime crisis. Sub-prime loans were bundled into now famous collateralized debt obligations (CDO's) that were difficult to find on the balance sheets of banks and investment banks. In the case of Lehman Brothers, the collapse came after it marked the CDO's to market, finally clarifying their exposure. When investors and banks had no idea of the types of assets that were part of their portfolio – i.e. how much sub-prime exposure and other problem loans existed, lending between financial institutions stopped. Banks were afraid to lend to each other because they had no idea what kind of loans were on the books of the borrowing bank. Without being able to lend to each other, banks could not lend to corporations and the credit crisis exploded.

On the housing price side, similar optimism is illustrated by the graph below. This shows actual housing prices and prices forecast by Global Insight, a prominent forecasting company. The housing price forecast was made in the second quarter of 2007, just as the first signs of the crisis were becoming apparent. The company forecast a slight decrease in prices and then continued increases. In fact, prices have tumbled.

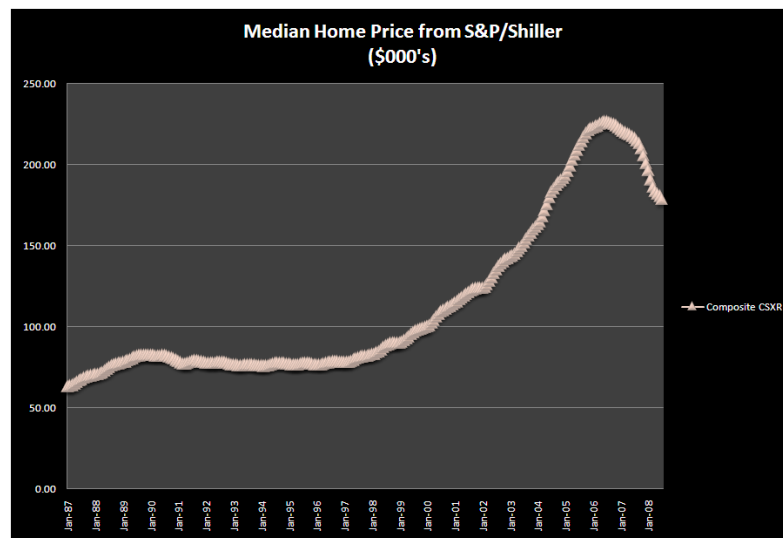


As with other issues regarding Constellation there is an analogy between Constellation and firms in the sub-prime industry. The comparison between speculation in energy prices and speculation in housing prices is noted by the economist Robert Shiller:

Bubbles in prices are driven by “increasing credibility to stories – new era stories – that appear to justify the belief that the boom will continue... People think the world is led by independent minds who invariably act with great intelligence... The new era story about the emergence of capitalist institutions over much of the world – notably emerging countries like China and India – has captured the imagination of speculators and their imagination connects this story with prices in many different markets, including energy, grains, even gold and other metals. The exaggerated attention to this story is behind the world energy crisis and the world food crisis as well as the housing bubble.”

The analogies between Constellation’s bets on energy prices and the belief that housing prices would continue to increase is illustrated by comparing the housing price chart below with the oil price graph above. Despite the fact that over the long-term, housing prices follow the general rate of inflation, people believed that price increases would continue. The belief that housing prices would increase drove the idea that sub-prime loans with no down payments could be made to people with questionable credit history and no documentation of income. In the extreme, reckless loans named NINJA loans (No Income, No Job, and No Assets) were dispersed on the presumption that housing prices would continue to increase. Similar to the way Constellation thought it could create higher and higher profits by trading in order to plug a “gap” that it had in earnings from generation, people believed they could make money on buying second houses. The manner in which people thought they could realize high profits without taking risk is illustrated by the following statement from “Trillion Dollar Meltdown”:

Lenders welcomed “flippers” – people buying houses solely for the purpose of reselling in a year or so. By 2005, 40% of all home purchases were either for investment or for second homes. Experts believe that a large share of the “second homes” actually were speculations for resale. A surprising number of sub-primes went to affluent people stretching for second homes.



The bond rating downgrade of Constellation has a number of analogies to the sub-prime crisis. Constellation’s downgrade occurred after it became clear that the company had more risk related to its trading operations than was originally estimated by the rating agencies. This is similar to the errors that the rating agencies made in rating investment vehicles that held sub-prime loans (many bundles of sup-prime mortgages were rated AA or AAA before the middle of 2007).

Constellation’s loss of ability to raise cash is analogous to the liquidity crisis faced by financial firms who were highly exposed to sub-prime loans.